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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,506	09/15/2003	Kentaro Tomioka	P 0303501 3KG035208USAA	9186

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EXAMINER	
PAPE, ZACHARY	

ART UNIT	PAPER NUMBER
2835	

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/662,506	TOMIOKA ET AL.	
	Examiner	Art Unit	
	Zachary M. Pape	2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 9/15/03
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 1 and 6 are objected to because of the following informalities: In claim 1, line 10, the wording, "head-radiating portion" is incorrect. It appears that it should be changed to read, "heat-radiating portion". Additionally in claim 6, line 15, the wording, "two recesses spaced part" is incorrect. It appears that it should be changed to read, "two recesses spaced apart".

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakagawa et al. (US 6,519,148) in view of Takashi et al. (JP 2004-047843). With respect to claim 1, Nakagawa et al. teaches the use of an electronic apparatus comprising: a first housing (1) incorporating a heat-generating component (4, 5) and first circuit component (3); a second housing (2) coupled to the first housing and incorporating a second circuit component (Inherently the LCD display of Nakagawa et al. must have some type of circuitry to operate the display); a heat-receiving portion (10) provided in the first housing and thermally connected to the heat-generating component

(The heat-receiving portion must be thermally connected to the heat-generating component to remove heat from the component); a heat-radiating portion (Defined by 12 in the display portion) provided in the second housing and radiating heat generated by the heat-generating component (Column 4, Lines 25-26), a circulation path through which liquid coolant is circulated between the heat-receiving portion and the heat-radiating portion to transfer the heat from the heat-generating component to the heat-radiating portion (The path is defined by the tube 12 as illustrated in Fig 1), and which includes a first pipe (12) which supplies the liquid coolant heated in the heat-receiving portion to the heat-radiating portion and a second pipe which supplies the liquid coolant cooled in the heat-receiving portion (As illustrated in Fig 5, the coolant enters into 10 on the left side to be warmed by the heat-generating component, and exits on the right to be cooled by the heat-radiating portion). Nakagawa et al. further teaches that a junction between the first housing (1) and the second housing (2) has three passages (Two of which are defined by the inlet and outlet of tube (12) from each housing, the third passage is located between the two other passages) which connect an interior of the first housing and an interior of the second housing. Nakagawa et al. fails to teach the use of a cable which extends between the first housing and the second housing and electrically connects the first circuit component and the second circuit component.

Takashi et al. teaches the use of a cable (23) which extends between a first housing and a second housing and electrically connects a first circuit component and a second circuit component. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the wire of Takashi et al. with the liquid

cooling system of Nakagawa et al. to provide a means of electrically connecting the display to the main body of the computer. Electrically connecting the display to the main body of the computer provides a means for the display to actively display programs running on the computer so that the user can interface with the software. Further, the cable of Takashi et al. could be placed in the third passage (defined as being between the two other passages as described above) such that in the event of a leak in the tube (12) at the joint, the cable would not be exposed to any coolant thereby reducing repair costs to the computer.

With respect to claim 2, Nakagawa et al. further teaches that the remaining two of said three passages through which the first and second pipes extend, are spaced apart from each other in a widthwise direction of the first and the second housings, and said one of said three passages, through which the cable extends, is positioned between said remaining two of said three passages (As detailed in claim 1 above, it would have been obvious to one of ordinary skill in the art to place the cable of Takashi et al. between the first and second pipes of Nakagawa et al. to reduce the likelihood of coolant spilling onto the cable in the event of a leak in the joint. Further, placing the cable in the middle is the most direct route from the circuitry of the first housing to the second housing thereby reducing manufacturing costs of the cable).

With respect to claim 3, Nakagawa et al. further teaches two hinges (Fig 7 illustrates only the left hinge, however Nakagawa et al. illustrates the use of two hinges in Fig 4) which support the second housing (2) to allow the first housing (1) to rotate and which are spaced apart from each other in a widthwise direction of the first and the

second housings (As illustrated in Fig 4), and said three passages are positioned between the hinges (As detailed in claims 1 and 2 above, the first and second passages are defined by where the tube (12) enters into the second housing (2), and the third passage, located between the first two passages, could carry the cable of Takashi et al.).

With respect to claim 4, Nakagawa et al. further teaches that the junction between the first and second housings is located at a midpoint with respect to a widthwise direction of the first and second housings (As illustrated in Fig 4), the heat-radiating portion (Defined by 12 in the display portion) having a coolant inlet port connected to the first pipe and a coolant outlet port connected to the second pipe (Each hinge contains a member as illustrated in Fig 8 with an inlet and outlet port by which the coolant travels into and out of the two housings), and the coolant inlet port and the coolant outlet port are spaced apart from each other in the widthwise direction of the second housing (As illustrated in Fig 4).

With respect to claim 5, Nakagawa et al. further teaches that the second housing (2) has a hollow leg which protrudes toward the first housing and which has two recesses spaced apart in a widthwise direction of the second housing, the first housing has two hollow projections which are inserted in the recesses, and each of said three passages extends between one hollow projection and a sidewall defining the recess in which the hollow projection is inserted. (As illustrated in the present office action figs 1 and 2 below, each of the passages (as defined by the tube (12) passing from the first

housing to the second housing, extends between one hollow projection and a sidewall defining the recess (See Fig 1 below)).

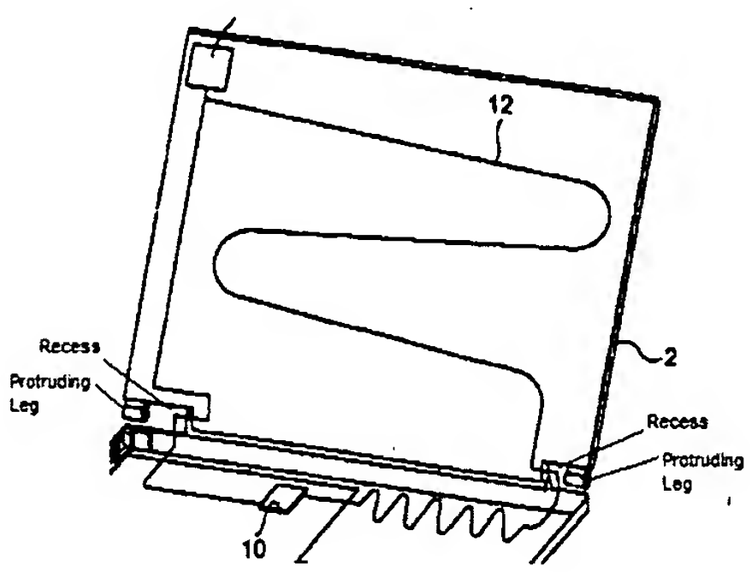

Fig 1

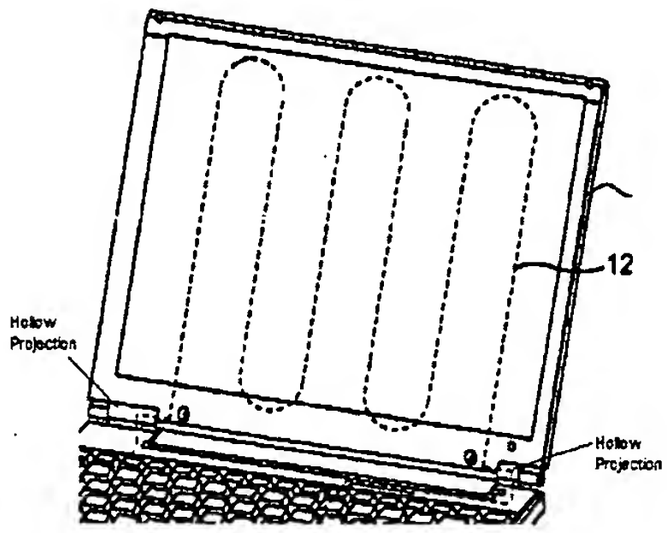

Fig 2

With respect to claim 6, Nakagawa et al. further teaches that the first housing (1) has a hollow support member which protrudes toward the second housing (See present office action Fig 2 above) and which has two recesses spaced apart in a widthwise direction of the first housing (Which are filled by the protruding leg of present office action fig 1 above), the second housing (2) has two hollow projections (protruding leg, Fig 1 above) inserted in the recesses, and each of said three passages extends between one hollow projection and a sidewall defining the recess in which the hollow projection is inserted (As illustrated in present office action Fig 1 above).

With respect to claim 7, Nakagawa et al. further teaches that the heat-receiving portion has a pump (11) which supplies the liquid coolant, heated in the heat- receiving portion, to the heat-radiating portion.

With respect to claim 8, Nakagawa et al. further teaches that the first and the second pipes are flexible (Column 4, Lines 44-57).

With respect to claim 9, Nakagawa et al. teaches the use of an electronic apparatus comprising: a first housing (1) incorporating a heat-generating component (4, 5) and first circuit component (3); a second housing (2) incorporating a display and having a leg (See present office action Fig 1 above) rotatably coupled to the first housing; a heat-receiving portion (10) provided in the first housing and thermally connected to the heat-generating component (The heat-receiving portion must be thermally connected to the heat-generating component to remove heat from the component); a heat-radiating portion (Defined by 12 in the display portion) provided in the second housing and radiating heat generated by the heat-generating component (Column 4, Lines 25-26), a circulation path through which liquid coolant is circulated between the heat-receiving portion and the heat-radiating portion to transfer the heat from the heat-generating component to the heat-radiating portion (The path is defined by the tube 12 as illustrated in Fig 1), and which includes a first pipe (12) which supplies the liquid coolant heated in the heat-receiving portion to the heat-radiating portion and a second pipe which supplies the liquid coolant cooled the heat-radiating portion the heat-receiving portion (As illustrated in Fig 5, the coolant enters into 10 on the left side to be warmed by the heat-generating component, and exits on the right to be cooled by the heat-radiating portion). Nakagawa et al. further teaches a junction between the first housing (1) and the leg has three passages (Two of which are defined by the inlet and outlet of tube (12) from each housing, the third passage is located between the two

other passages) which connect an interior of the first housing and an interior the second housing. Nakagawa et al. fails to teach the use of a cable which extends between the first housing and the second housing and electrically connects the first circuit component and the second circuit component.

Takashi et al. teaches the use of a cable (23) which extends between a first housing and a second housing and electrically connects a first circuit component and a display. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the wire of Takashi et al. with the liquid cooling system of Nakagawa et al. to provide a means of electrically connecting the display to the main body of the computer. Electrically connecting the display to the main body of the computer provides a means for the display to actively display programs running on the computer so that the user can interface with the software. Further, the cable of Takashi et al. could be placed in the third passage (defined as being between the two other passages as described above) such that in the event of a leak in the tube (12) at the joint, the cable would not be exposed to any coolant thereby reducing repair costs to the computer.

With respect to claim 10, Nakagawa et al. further teaches that the leg has two recesses spaced apart in a widthwise direction of the second housing, the first housing has two hollow projections which are inserted in the recesses, and each of said three passages extends between one hollow projection and a sidewall defining the recess in which the hollow projection is inserted. (As illustrated in the present office action figs 1 and 2 above. Each of the passages (as defined by the tube (12) passing from the first

housing to the second housing, extends between one hollow projection and a sidewall defining the recess (See Fig 1 above)).

With respect to claim 11, Nakagawa et al. further teaches that the heat-radiating portion (Defined by 12 in the display portion) has a coolant inlet port connected to the first pipe and a coolant outlet port connected to the second pipe (Each hinge contains a member as illustrated in Fig 8 with an inlet and outlet port by which the coolant travels into and out of the two housings), and the coolant inlet port and the coolant outlet port are spaced apart from each other in the widthwise direction of the second housing (As illustrated in Fig 4).

With respect to claim 12, Nakagawa et al. teaches the use of an electronic apparatus comprising: a first housing mean (1) for incorporating a heat-generating component (4, 5) and a first circuit component (3); a second housing means (2) for coupling the first housing and incorporating a second circuit component (Inherently the LCD display of Nakagawa et al. must have some type of circuitry to operate the display); a heat-receiving means (10) provided in the first housing means for thermally connected to the heat-generating component (The heat-receiving means must be thermally connected to the heat-generating component to remove heat from the component); a heat-radiating means (Defined by 12 in the display portion) provided in the second housing means for radiating heat generated by the heat-generating component (Column 4, Lines 25-26), a circulation path through which liquid coolant is circulated between the heat-receiving means and the heat-radiating means to transfer the heat from the heat-generating component to the heat-radiating means (The path is

defined by the tube 12 as illustrated in Fig 1), and which includes a first pipe (12) which supplies the liquid coolant heated in the heat-receiving means to the heat-radiating means and a second pipe which supplies the liquid coolant cooled in the heat-radiating means to the heat-receiving means (As illustrated in Fig 5, the coolant enters into 10 on the left side to be warmed by the heat-generating component, and exits on the right to be cooled by the heat-radiating means). Nakagawa et al. further teaches a junction between the first housing means (1) and second housing means (2) has three passages (Two of which are defined by the inlet and outlet of tube (12) from each housing, the third passage is located between the two other passages) which connect an interior of the first housing means and an interior of the second housing means. Nakagawa et al. fails to teach the use of a cable which extends between the first housing means and the second housing means and electrically connects the first circuit component and the second circuit component.

Takashi et al. teaches the use of a cable (23) which extends between a first housing means and a second housing means and electrically connects a first circuit component and a second circuit component. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the wire of Takashi et al. with the liquid cooling system of Nakagawa et al. to provide a means of electrically connecting the display to the main body of the computer. Electrically connecting the display to the main body of the computer provides a means for the display to actively display programs running on the computer so that the user can interface with the software. Further, the cable of Takashi et al. could be placed in the

third passage (defined as being between the two other passages as described above) such that in the event of a leak in the tube (12) at the joint, the cable would not be exposed to any coolant thereby reducing repair costs to the computer.

With respect to claim 13, Nakagawa et al. further teaches that the remaining two of said three passages through which the first and second pipes extend, are spaced apart from each other in a widthwise direction of the first and the second housing means, and said one of said three passages, through which the cable extends, is positioned between said remaining two of said three passages (As detailed in claim 1 above, it would have been obvious to one of ordinary skill in the art to place the cable of Takashi et al. between the first and second pipes of Nakagawa et al. to reduce the likelihood of coolant spilling onto the cable in the event of a leak in the joint. Further, placing the cable in the middle is the most direct route from the circuitry of the first housing to the second housing thereby reducing manufacturing costs of the cable).

With respect to claim 14, Nakagawa et al. further teaches two hinges (Fig 7 illustrates only the left hinge, however Nakagawa et al. illustrates the use of two hinges in Fig 4) which support the second housing means (2) to allow the first housing means (1) to rotate and which are spaced apart from each other in a widthwise direction of the first and the second housing means (As illustrated in Fig 4), and said three passages are positioned between hinges (As detailed in claims 1 and 2 above, the first and second passages are defined by where the tube (12) enters into the second housing means (2), and the third passage, located between the first two passages, could carry the cable of Takashi et al.).

With respect to claim 15, Nakagawa et al. further teaches that the junction between the first and second housing means is located at a midpoint with respect to a widthwise direction of the first and second housing means (As illustrated in Fig 4), the heat-radiating means (Defined by 12 in the display portion) having a coolant inlet port connected to the first pipe and a coolant outlet port connected to the second pipe (Each hinge contains a member as illustrated in Fig 8 with an inlet and outlet port by which the coolant travels into and out of the two housings), and the coolant inlet port and the coolant outlet port are spaced apart from each other in the widthwise direction of the second housing means (As illustrated in Fig 4).

With respect to claim 16, Nakagawa et al. further teaches that the second housing means (2) has a hollow leg which protrudes toward the first housing means and which has two recesses spaced apart in a widthwise direction of the second housing means, the first housing means has two hollow projections which are inserted in the recesses, and each of said three passages extends between one hollow projection and a sidewall defining the recess in which the hollow projection is inserted. (As illustrated in the present office action figs 1 and 2 above. Each of the passages (as defined by the tube (12) passing from the first housing to the second housing, extends between one hollow projection and a sidewall defining the recess (See Fig 1 above)).

With respect to claim 17, Nakagawa et al. further teaches that the first housing means (1) has a hollow support member which protrudes toward the second housing means (See present office action Fig 2 above) and which has two recesses spaced apart in a widthwise direction of the first housing means (Which are filled by the

protruding leg of present office action fig 1 above), the second housing means (2) has two hollow projections (protruding leg, Fig 1 above) inserted in the recesses, and each of said three passages extends between one hollow projection and a sidewall defining the recess in which the hollow projection is inserted (As illustrated in present office action Fig 1 above).

With respect to claim 18, Nakagawa et al. further teaches that the heat-receiving means has a pump (11) which supplies the liquid coolant heated in the heat-receiving means, to the heat-radiating means

With respect to claim 19, Nakagawa et al. further teaches that the first and the second pipes are flexible (Column 4, Lines 44-57).

With respect to claim 20, Nakagawa et al. teaches the use of an electronic apparatus comprising: a first housing means (1) for incorporating a heat-generating component (4, 5) and a circuit component (3); a second housing means (2) for incorporating a display and having a leg (See present office action Fig 1 above) rotatably coupled to the first housing; a heat-receiving means (10) provided in the first housing means for thermally connected to the heat-generating component (The heat-receiving means must be thermally connected to the heat-generating component to remove heat from the component); a heat-radiating means (Defined by 12 in the display portion) provided in the second housing means for radiating heat generated by the heat-generating component (Column 4, Lines 25-26), a circulation path through which liquid coolant is circulated between the heat-receiving means and the heat-radiating means to transfer the heat from the heat-generating component to the heat-radiating means (The

path is defined by the tube 12 as illustrated in Fig 1), and which includes a first pipe (12) which supplies the liquid coolant heated in the heat-receiving means to the heat-radiating means and a second pipe which supplies the liquid coolant cooled the heat-radiating means the heat-receiving means (As illustrated in Fig 5, the coolant enters into 10 on the left side to be warmed by the heat-generating component, and exits on the right to be cooled by the heat-radiating means). Nakagawa et al. further teaches a junction between the first housing means (1) and the leg has three passages (Two of which are defined by the inlet and outlet of tube (12) from each housing means, the third passage is located between the two other passages) which connect an interior of the first housing means and an interior the second housing means. Nakagawa et al. fails to teach the use of a cable which extends between the first housing means and the second housing means and electrically connects the first circuit component and the display

Takashi et al. teaches the use of a cable (23) which extends between a first housing and a second housing and electrically connects a first circuit component and a display. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the wire of Takashi et al. with the liquid cooling system of Nakagawa et al. to provide a means of electrically connecting the display to the main body of the computer. Electrically connecting the display to the main body of the computer provides a means for the display to actively display programs running on the computer so that the user can interface with the software. Further, the cable of Takashi et al. could be placed in the third passage (defined as being between the two other

passages as described above) such that in the event of a leak in the tube (12) at the joint, the cable would not be exposed to any coolant thereby reducing repair costs to the computer.

With respect to claim 21, Nakagawa et al. further teaches that the leg has two recesses spaced apart in a widthwise direction of the second housing means, the first housing means has two hollow projections which are inserted in the recesses, and each of said three passages extends between one hollow projection and a sidewall defining the recess in which the hollow projection is inserted. (As illustrated in the present office action figs 1 and 2 above. Each of the passages (as defined by the tube (12) passing from the first housing to the second housing, extends between one hollow projection and a sidewall defining the recess (See Fig 1 above)).

With respect to claim 22, Nakagawa et al. further teaches that the heat-radiating means (Defined by 12 in the display portion) has a coolant inlet port connected to the first pipe and a coolant outlet port connected to the second pipe (Each hinge contains a member as illustrated in Fig 8 with an inlet and outlet port by which the coolant travels into and out of the two housings), and the coolant inlet port and the coolant outlet port are spaced apart from each other in the widthwise direction of the second housing means (As illustrated in Fig 4).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zachary M. Pape whose telephone number is 571-272-

2201. The examiner can normally be reached on Mon. - Thur. & every other Fri. (8:00am - 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn Feild can be reached at 571-272-2092. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ZMP

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